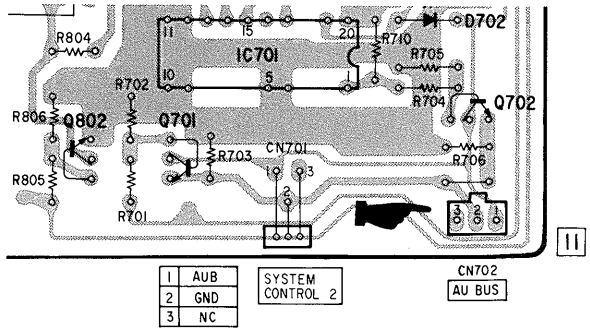
ST-V702

SERVICE MANUAL

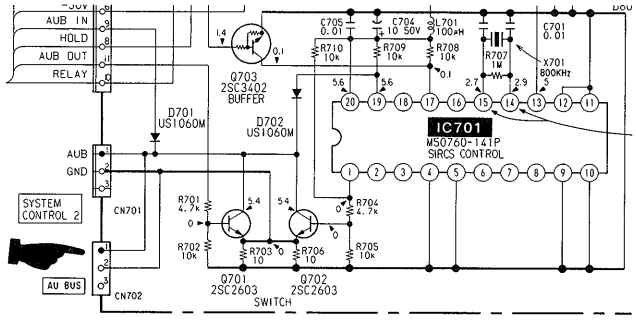
AEP Model
UK Model

The model is almost the same as the model ST-V502 previously produced. Therefore, see the ST-V502 service manual for the information not contained in this service manual.

PRINTED WIRING BOARDS
Page 10 on ST-V502 Service Manual
☛: different portion



SCHEMATIC DIAGRAM
Page 12 on ST-V502 Service Manual
☛: different portion



PARTS LIST

- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- WG : West Germany model
  IT : Italian model

Page on ST-V502 Service Manual	No.	ST-V502 Part No.	ST-V702 Part No.	Description
14	1	X-4917-289-1	X-4917-290-1	PANEL ASSY, FRONT
	15	*4-934-871-11 *4-934-871-21 *4-934-871-41	*4-934-881-11 *4-934-881-21 *4-934-881-41	(AEP,IT) ····PANEL, BACK (UK) ····· PANEL, BACK (WG) ····· PANEL, BACK
	19	4-933-601-01	*4-934-883-01	FOOT
14, 17	902	*A-4334-501-A *A-4334-503-A *A-4334-822-A	*A-4334-690-A *A-4334-697-A *A-4334-692-A	(AEP) ·····MOUNTED PCB, POWER (WG,IT) ····MOUNTED PCB, POWER (UK) ····· MOUNTED PCB, POWER
	903	*A-4334-497-A *A-4334-499-A *A-4334-500-A *A-4334-821-A	*A-4334-689-A *A-4334-696-A *A-4334-698-A *A-4334-691-A	(AEP) ·····MOUNTED PCB, PANEL (WG) ····· MOUNTED PCB, PANEL (IT) ·····MOUNTED PCB, PANEL (UK) ····· MOUNTED PCB, PANEL
17	CN701	*1-569-625-21	*1-569-625-11	SOCKET, CONNECTOR 3P (SYSTEM CONTROL 2)
	CN702	——	*1-565-561-11	PIN, CONNECTOR 3P (AU BUS)
	CN901	*1-569-625-11	*1-569-625-41	SOCKET, CONNECTOR 3P (SYSTEM CONTROL 1)

FM STEREO/FM-AM TUNER

SONY®

9-955-922-11

Sony Corporation
Audio Group

English
90E1652-1
Printed in Japan

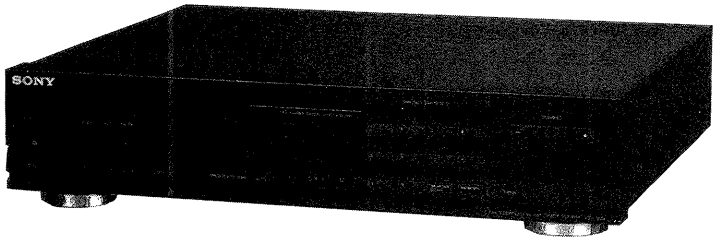
©1990.5

Published by Customer Relations and Service Group

ST-V502

SERVICE MANUAL

AEP Model
UK Model



This set is FM stereo/FM-AM Tuner section in LBT-V502/V502CD/V502CDG.

SPECIFICATIONS

Tuner	
System	FM stereo FM/AM superheterodyne tuner
FM tuner section	
Tuning range	87.5 to 108 MHz
Antenna	75 ohms unbalanced
Intermediate frequency	10.7 MHz
MW/LW tuner section	
Tuning range	MW: 522 to 1,611kHz (Italian model) 531 to 1,602kHz (other models) LW: 144 to 288kHz (Italian model) 153 to 279kHz (other models)
Antenna	AM loop antenna External antenna terminal
Intermediate frequency	450 kHz
Power requirements	240V AC, 50Hz (UK model) 220V AC, 50Hz (other models)
Power consumption	10 W
AC outlet	2 switched, total 500 W max.
Weight	Approx. 2.4 kg
Dimensions	Approx. 355 × 80 × 312 mm (w/h/d, including projections)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

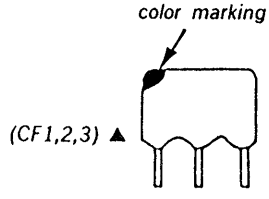
FM STEREO/FM-AM TUNER

SONY®

SECTION 1
SERVICING NOTES

Note on Ceramic Filter (CF1,2,3) ▲ Replacement.

This set employs three ceramic filters (CF1,2,3) ▲ which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by * D609, * D610 is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



○ : Mounted
× : not Mounted

Ceramic filter		Mount		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	* D609	* D610	
White	10.750	○	×	10.750
Red	10.700	×	×	10.700
Black	10.650	×	○	10.650

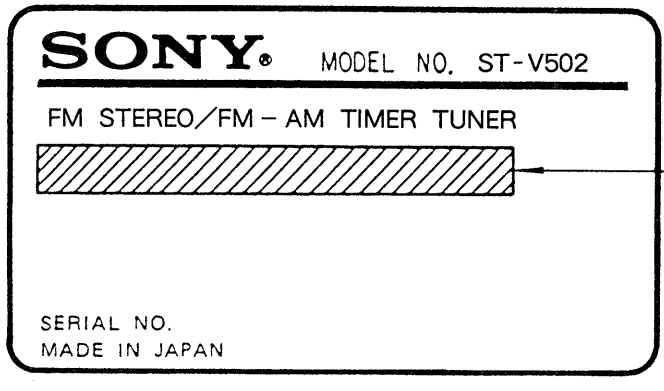
FM intermediate frequency is determined by the three types as shown above, Ceramic filters of same center frequency,i.e., of same color coding should be used for CF1, CF2, and CF3.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

▲ : AEP, UK Model : CF1, 2
WG, IT Model : CF1, 2, 3

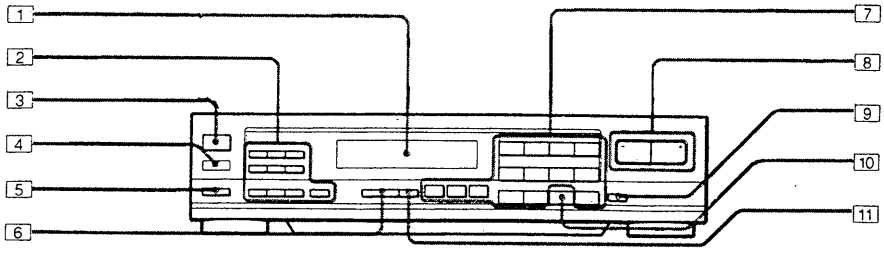
MODEL IDENTIFICATION

– Specification Label –



AEP, West Germany,
Italian Model : AC : 220V ~ 50/60 Hz
UK Model : AC : 240V ~ 50/60 Hz

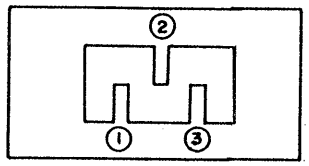
LOCATION OF CONTROLS



1 Display window
2 Buttons for setting the clock and timer
3 SYSTEM POWER switch
4 Remote sensor
5 SLEEP button
6 FREQUENCY/TIME button
7 Buttons for storing station frequencies
8 TUNING buttons
9 BAND selector
10 MEMORY SCAN button
11 AUTO tuning button

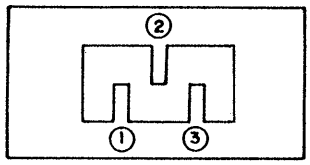
Signal of System Control Connector

CNJ901
SYSTEM CONTROL 1



1	L-CH OUT
2	GND
3	R-CH OUT

CNJ701
SYSTEM CONTROL 2



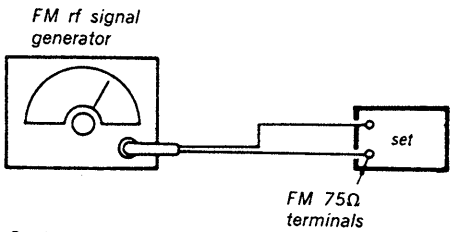
1	AUB
2	GND
3	

SECTION 2
ELECTRICAL ADJUSTMENTS

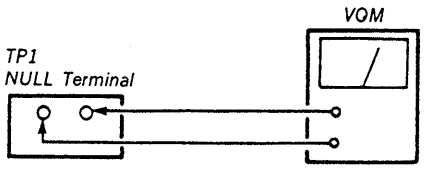
FM SECTION

FM DISCRIMINATOR ADJUSTMENT

Setting:



Carrier frequency : *98MHz*
Modulation : *1kHz, 40kHz deviation (100%)*
Output level : *1mV (60dB)*



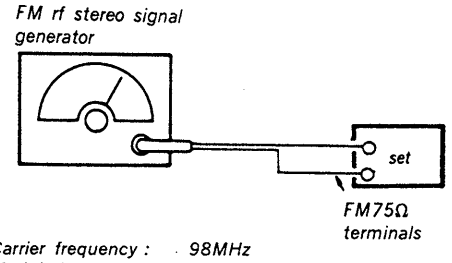
Procedure :

1. Tune the set to 98MHz.
2. Adjust T21 for 0V reading on the VOM.

Note : FM tuning level adjustment should be made after FM discriminator alignment.

FM TUNING LEVEL ADJUSTMENT

Setting :



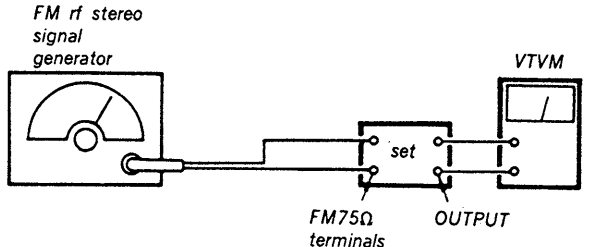
Carrier frequency : *98MHz*
Modulation : *1kHz, 40kHz deviation (100%)*
Output level : *17.8μV (25dB)*

Procedure :

1. Tune the set to 98MHz.
2. Adjust RV24 so that the TUNED LED goes on.

FM STEREO SEPARATION ADJUSTMENT

Procedure :



Carrier frequency : *98MHz*
Output level : *1mV (60dB)*
Modulation
Audio 400Hz : *16.25kHz deviation*
Sub channel 38kHz : *16.25kHz deviation*
Pilot signal 19kHz : *7.5kHz deviation*

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV21 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV21 for minimum reading.

L-CH Stereo separation : Ⓐ−Ⓑ
R-CH Stereo separation : Ⓒ−Ⓓ

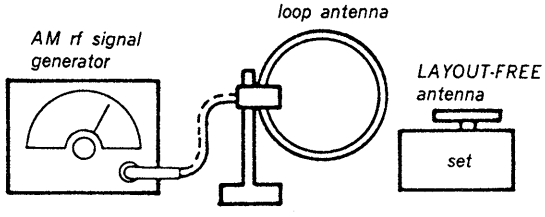
The separations of both channels should be equal.

MW/LW SECTION

AM TUNING LEVEL ADJUSTMENT

BAND select switch : LW

Setting :



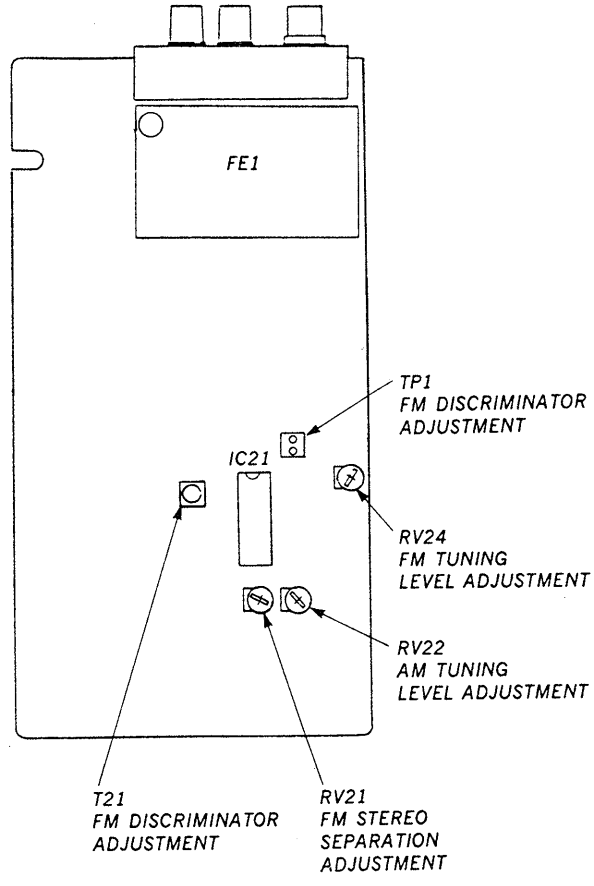
Carrier frequency : 216kHz
Modulation : 400Hz, 30% modulation

Procedure :

1. Set loop antenna so that the LAYOUT-FREE antenna input level becomes 2.5mV/m (68dB).
2. Tune the set to 216kHz.
3. Adjust the RV22 so that the TUNED LED goes on.

Adjustment Location :

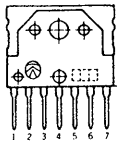
—tuner board—



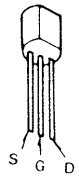
SECTION 3
DIAGRAMS

3-1. SEMICONDUCTOR LEAD LAYOUTS

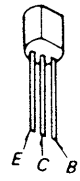
LA5667



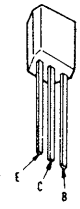
2SK246-GR3



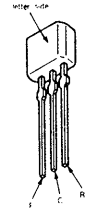
2SB1116A-L



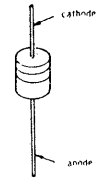
DTA144ES
DTC114ES
2SA1317-STU
2SC2603-EF
2SC2669-OY
2SC3113-A
2SC3330-STU
2SC3402



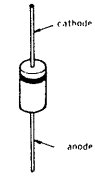
2SC2785-HFE



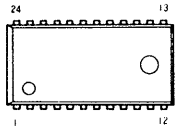
HZS27-2L
1SS120



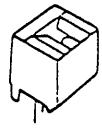
UZP-6.8B
10E2N



LC7218

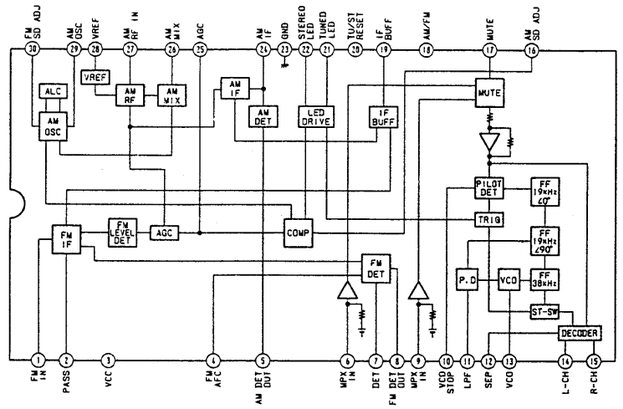


GP1U52XB

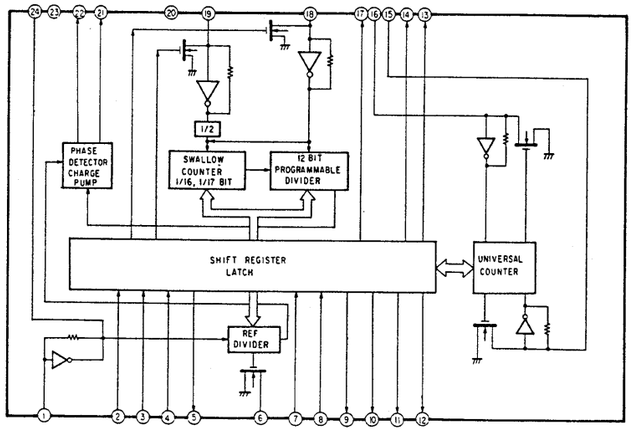


3-2. IC BLOCK DIAGRAMS

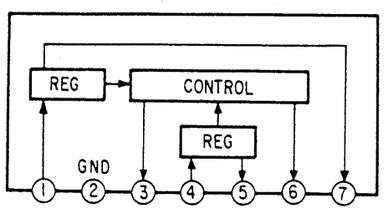
IC21 LA1851N



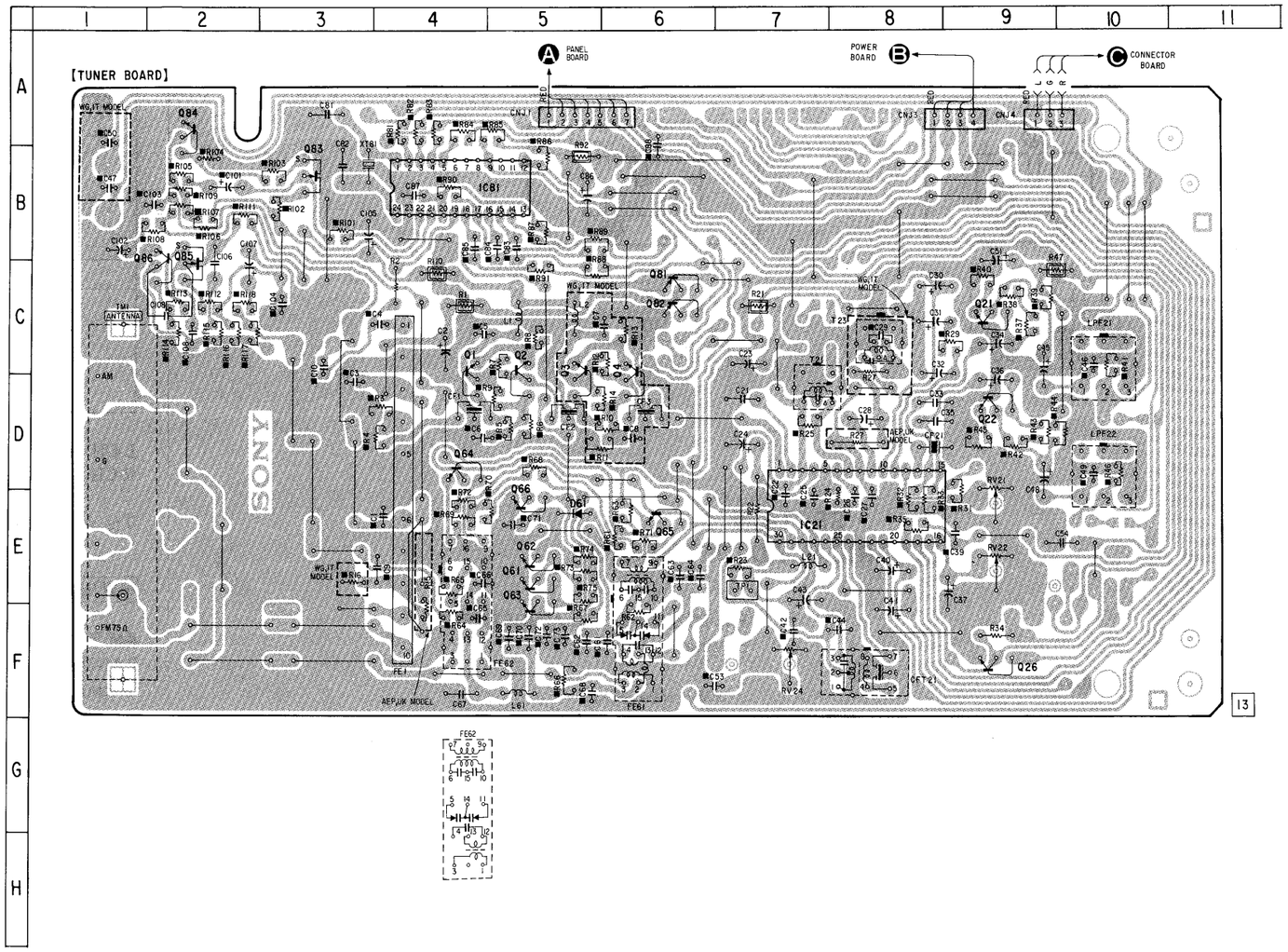
IC81 LC7218



IC701 LA5667



3-3. TUNER SECTION PRINTED WIRING BOARD



- **Semiconductor Location**

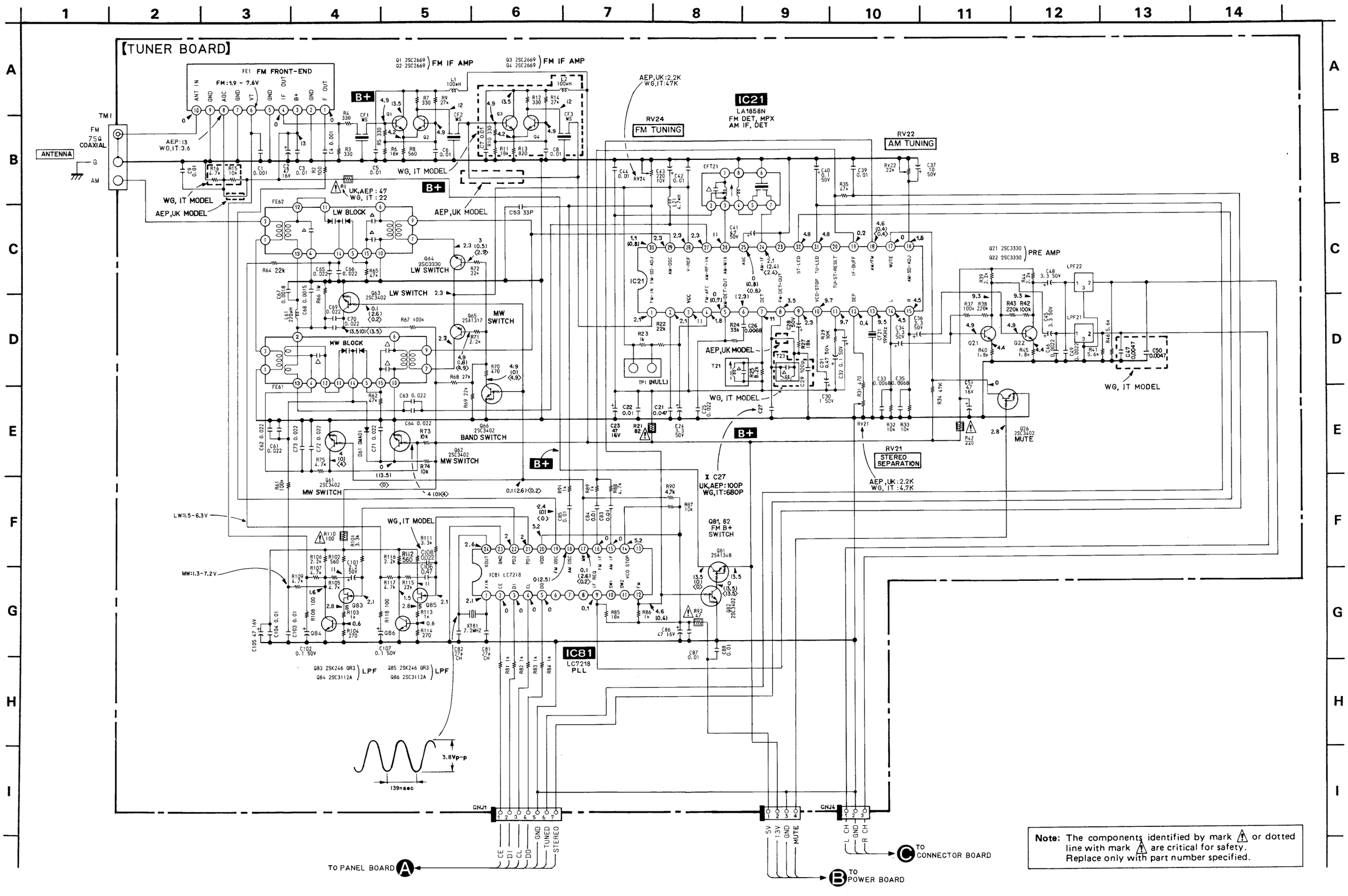
Ref. No.	Location
D61	E-5
IC21	E-8
IC81	B-4
Q1	D-4
Q2	D-5
Q3	D-5
Q4	D-6
Q21	C-9
Q22	D-9
Q26	F-9
Q61	E-5
Q62	E-5
Q63	F-6
Q64	D-4
Q65	E-6
Q66	E-5
Q81	C-6
Q82	C-6
Q83	B-3
Q84	A-2
Q85	C-2
Q86	C-2

- **Note on Printed Wiring Board**
- ○——: parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- indicates side identified with part number.
- WG: West Germany model
- IT: Italian model

- **Note on Schematie Digmam**
- *D609, *D610: See page 2 for Note on Ceramic Filter (CF1, 2, 3) ▲ Replacement.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- B+ : B+ Line
- B− : B− Line

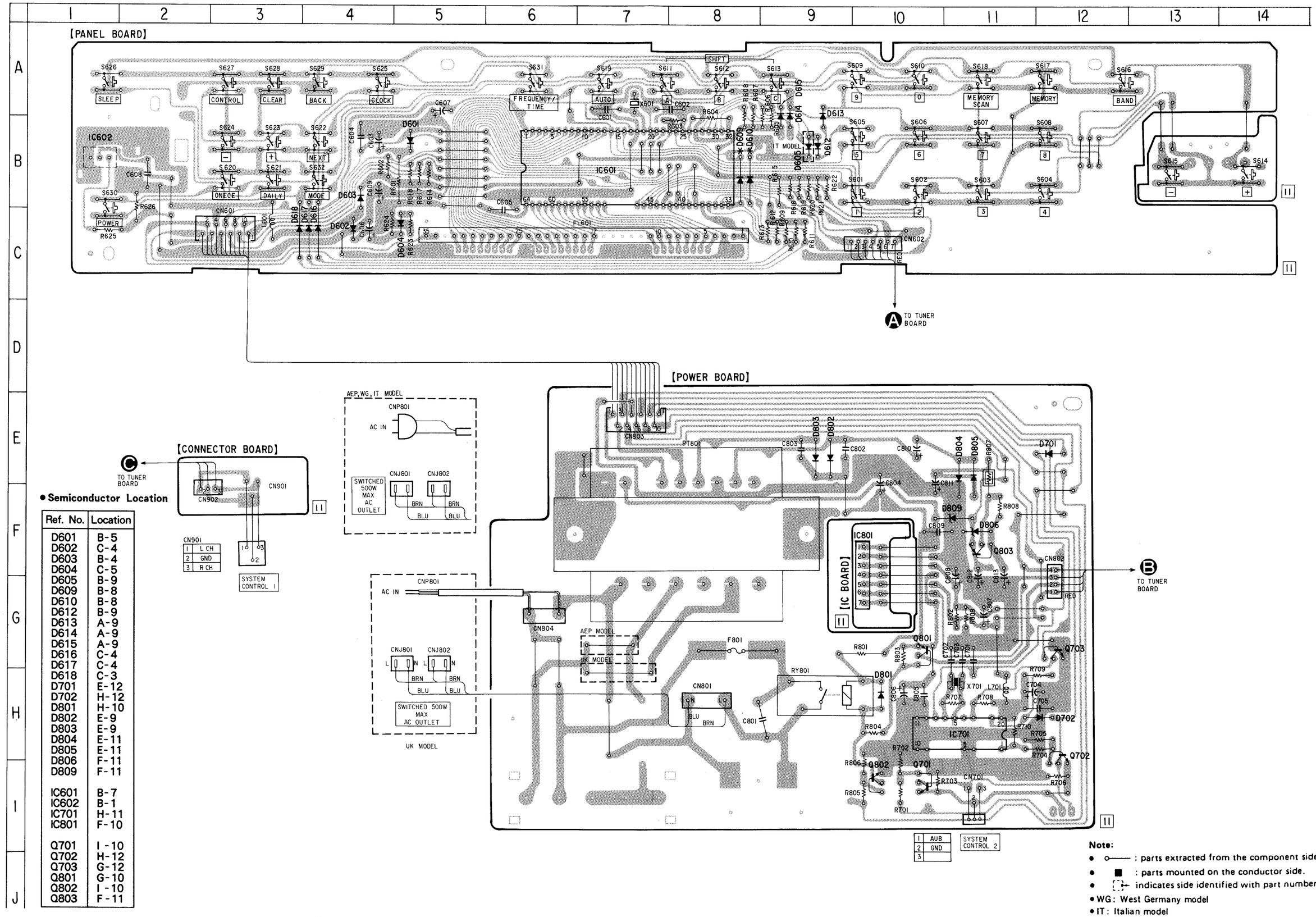
- : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM
  〈 〉 : LW
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- WG: West Germany model
- IT : Italian model

3-4. TUNER SECTION SCHEMATIC DIAGRAM



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

3-5. CONTROL AND POWER SUPPLY SECTION PRINTED WIRING BOARDS



• Semiconductor Location

Ref. No.	Location
D601	B-5
D602	C-4
D603	B-4
D604	C-5
D605	B-9
D609	B-8
D610	B-8
D612	B-9
D613	A-9
D614	A-9
D615	A-9
D616	C-4
D617	C-4
D618	C-3
D701	E-12
D702	H-12
D801	H-10
D802	E-9
D803	E-9
D804	E-11
D805	E-11
D806	F-11
D809	F-11
IC601	B-7
IC602	B-1
IC701	H-11
IC801	F-10
Q701	I-10
Q702	H-12
Q703	G-12
Q801	G-10
Q802	I-10
Q803	F-11

Note:

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ⊹ indicates side identified with part number.
- WG: West Germany model
- IT: Italian model

3-6. CONTROL AND POWER SUPPLY SECTION SCHEMATIC DIAGRAM • See page 6 for Notes.

[PANEL BOARD]

[POWER BOARD]

[CONNECTOR BOARD]

IC601 TMP47C870N-4661 CONTROLLER/FL DRIVE

IC602 GP1US2 RECEIVER

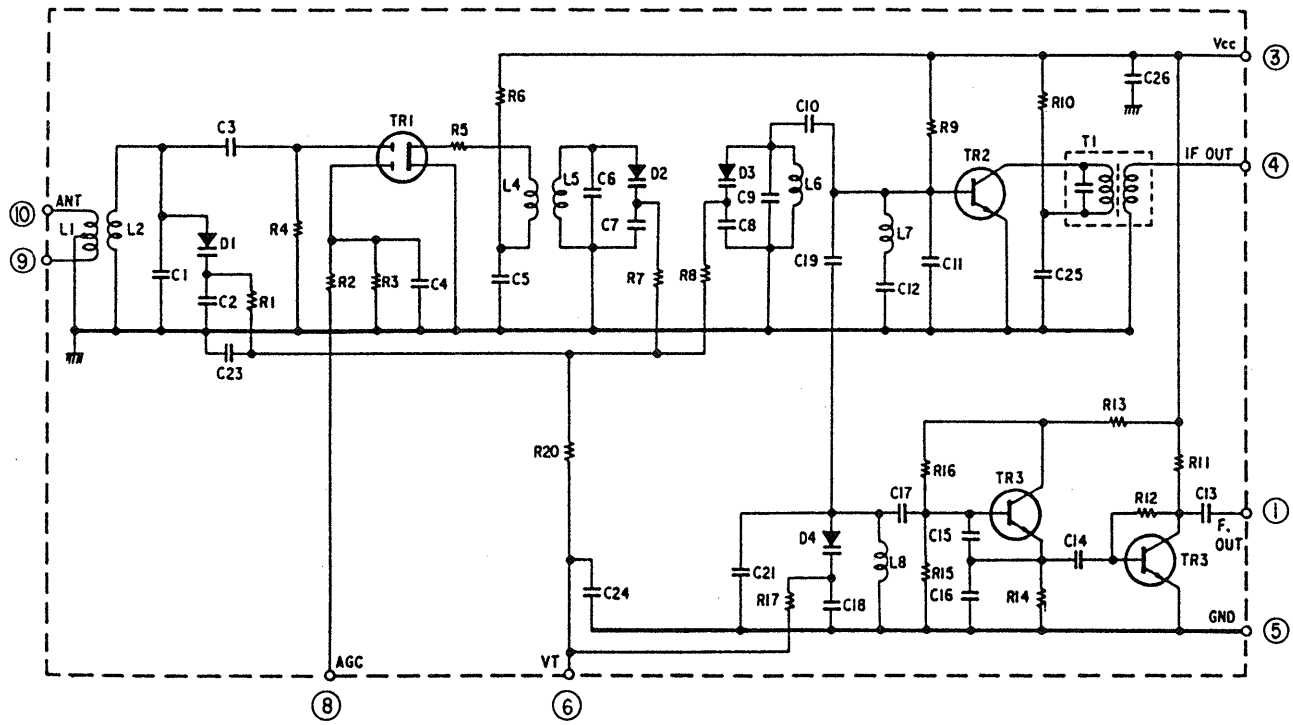
IC701 M50760-141P SIRCS CONTROL

IC801 LA5667 POWER CONTROL

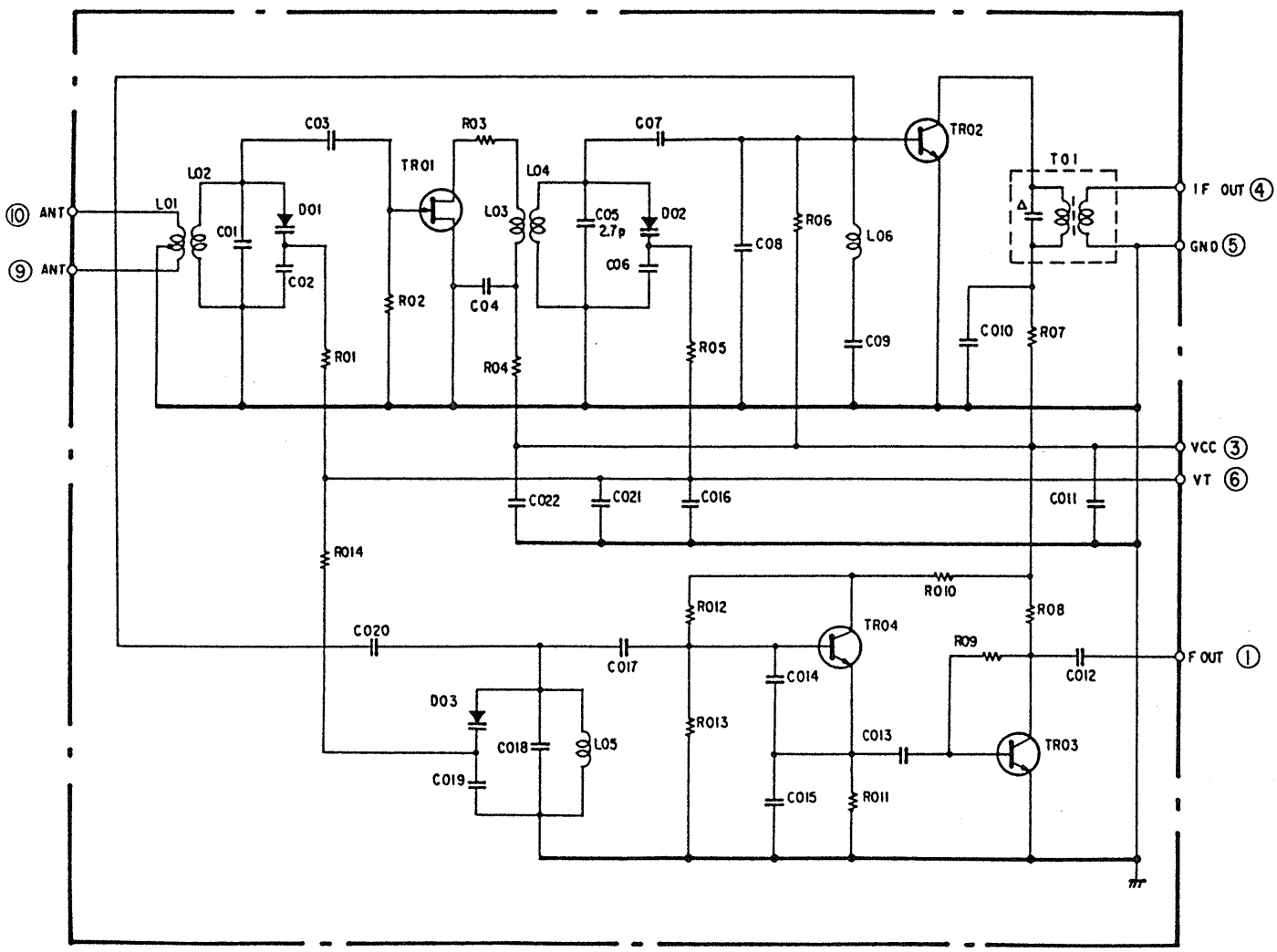
TO TUNER BOARD

3-7. FM FRONT-END (FE1) SCHEMATIC DIAGRAMS

(West Germany, Italian Model)



(AEP, UK Model)



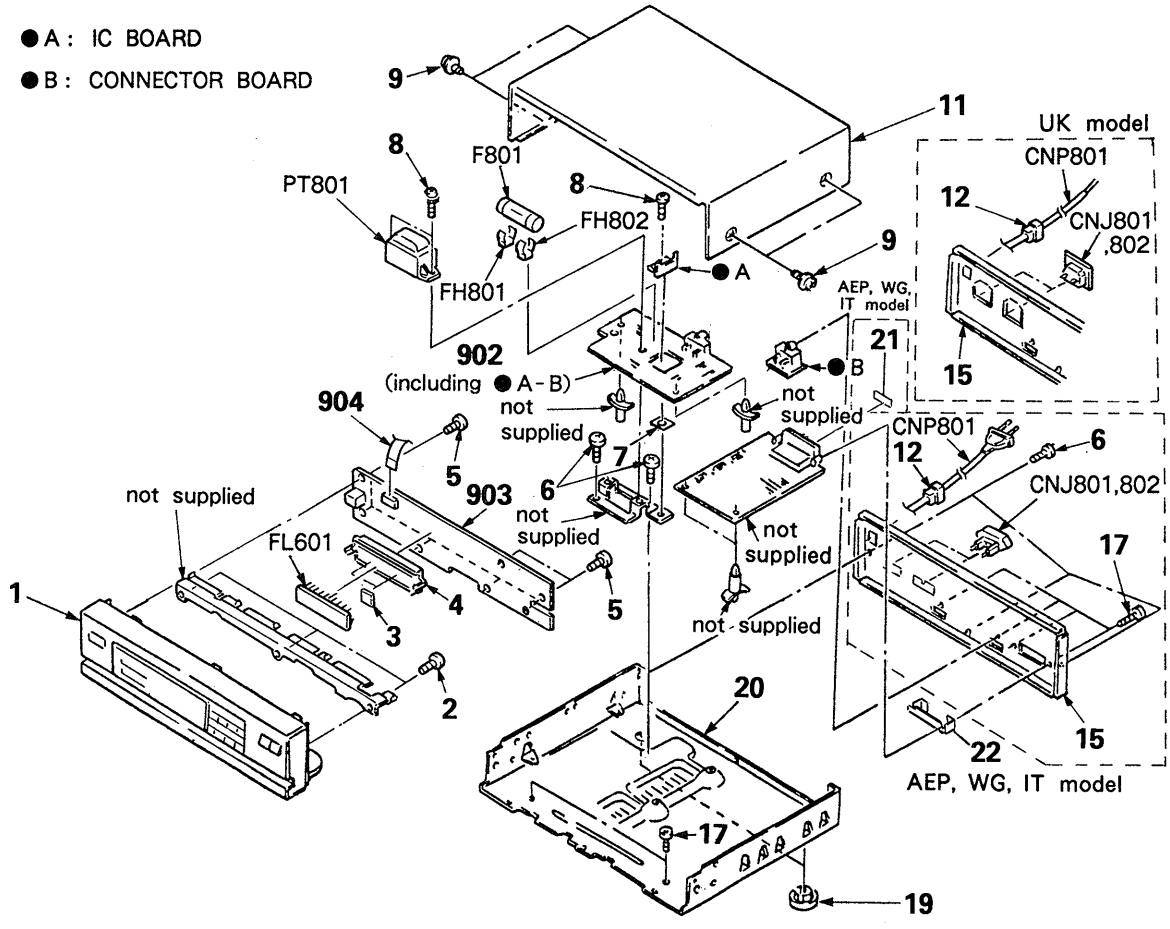
SECTION 4
EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) ... KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- WG: West Germany model
- IT : Italian model



No.	Part No.	Description	Remarks
1	X-4917-289-1	PANEL ASSY, FRONT	
2	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
3	*4-921-941-31	CUSHION (FL)	
4	*4-923-103-01	HOLDER, FL TUBE	
5	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
6	7-682-547-09	SCREW +BVTT 3X6 (S)	
7	*4-937-354-01	SHEET	
8	3-703-249-31	SCREW, S TIGHT, +PTTWH (M3X10)	
9	3-704-366-01	SCREW (CASE) (M3X8)	
11	4-919-389-31	CASE	
12	*3-703-244-00	BUSHING (2104), CORD	
15	*4-934-871-11	(AEP,IT)...PANEL, BACK	
	*4-934-871-21	(UK).....PANEL, BACK	
	*4-934-871-41	(WG).....PANEL, BACK	
17	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
19	4-933-601-01	FOOT	
20	*4-924-520-01	CHASSIS	
21	*4-612-009-01	(WG,IT)...SPACER (A)	
22	*4-924-988-11	PLATE (ST), GROUND	

No.	Part No.	Description	Remarks
902	*A-4334-501-A	(AEP).....MOUNTED PCB, POWER	
	*A-4334-503-A	(WG,IT)...MOUNTED PCB, POWER	
	*A-4334-822-A	(UK).....MOUNTED PCB, POWER	
903	*A-4334-497-A	(AEP)...MOUNTED PCB, PANEL	
	*A-4334-499-A	(WG)....MOUNTED PCB, PANEL	
	*A-4334-500-A	(IT)....MOUNTED PCB, PANEL	
	*A-4334-821-A	(UK)....MOUNTED PCB, PANEL	
904	1-575-666-11	WIRE, FLAT TYPE (11 CORE)	
CNJ801⚠	1-526-751-00	(UK).....OUTLET, AC	
CNJ801⚠	1-526-794-11	(AEP,WG,IT)...OUTLET, AC	
CNJ802⚠	1-526-751-00	(UK).....OUTLET, AC	
CNJ802⚠	1-526-794-11	(AEP,WG,IT)...OUTLET, AC	
CNP801⚠	1-575-651-11	(AEP,WG,IT)...CORD, POWER	
CNP801⚠	1-575-652-11	(UK).....CORD, POWER	
F801 ⚠	1-532-286-00	FUSE, TIME-LAG (2.5A)	
FH801	1-533-213-31	HOLDER, FUSE	
FH802	1-533-213-31	HOLDER, FUSE	
FL601	1-519-595-11	INDICATOR TUBE, FLUORESCENT	
PT801⚠	1-449-979-11	TRANSFORMER, POWER	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- WG: West Germany model
- IT : Italian model

TUNER SECTION

Ref.No.	Part No.	Description			
C1	1-162-294-31	CERAMIC CHIP	0.001MF	20%	25V
C2	1-126-101-11	ELECT	100MF	20%	16V
C3	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C4	1-162-294-31	CERAMIC CHIP	0.001MF	20%	25V
C5	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C6	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C7	1-163-059-00	(WG,IT)...CERAMIC MELF	0.01MF	20%	16V
C8	1-163-059-00	(WG,IT)...CERAMIC MELF	0.01MF	20%	16V
C9	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C11	1-101-005-00	(WG,IT)...CERAMIC	0.022MF		50V
C21	1-101-006-00	CERAMIC	0.047MF		50V
C22	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C23	1-124-477-11	ELECT	47MF	20%	16V
C24	1-123-382-00	ELECT	3.3MF	20%	50V
C25	1-163-063-00	CERAMIC MELF	0.022MF		25V
C26	1-163-019-00	CERAMIC CHIP	0.0068	20%	12V
C27	1-162-516-11	(AEP,UK)..CERAMIC CHIP	100PF	10%	50V
C27	1-163-007-11	(WG,IT)...CERAMIC CHIP	680PF	20%	50V
C28	1-124-791-11	ELECT	1.0MF	20%	50V
C29	1-162-516-11	(WG,IT)...CERAMIC CHIP	100PF	10%	50V
C30	1-124-791-11	ELECT	1.0MF	20%	50V
C31	1-124-902-00	ELECT	0.47MF	20%	50V
C32	1-124-463-00	ELECT	0.1MF	20%	50V
C33	1-130-481-00	FILM	0.0068MF	5%	50V
C34	1-123-382-00	ELECT	3.3MF	20%	50V
C35	1-130-481-00	FILM	0.0068MF	5%	50V
C36	1-123-382-00	ELECT	3.3MF	20%	50V
C37	1-123-875-11	ELECT	10MF	20%	50V
C39	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C40	1-124-463-00	ELECT	0.1MF	20%	50V
C41	1-124-927-11	ELECT	4.7MF	20%	50V
C42	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C43	1-126-176-11	ELECT	220MF	20%	10V
C44	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C45	1-123-382-00	ELECT	3.3MF	20%	50V
C46	1-161-375-00	CERAMIC CHIP	0.0022MF	20%	25V
C47	1-163-170-00	(WG,IT)...CERAMIC CHIP	0.0047MF	20%	25V
C48	1-123-382-00	ELECT	3.3MF	20%	50V
C49	1-161-375-00	CERAMIC CHIP	0.0022MF	20%	25V
C50	1-163-170-00	(WG,IT)...CERAMIC CHIP	0.0047MF	20%	25V
C51	1-124-477-11	ELECT	47MF	20%	16V
C53	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C54	1-101-005-00	(WG,IT)...CERAMIC	0.022MF		50V
C61	1-163-063-00	CERAMIC MELF	0.022MF		25V
C62	1-163-063-00	CERAMIC MELF	0.022MF		25V
C63	1-163-063-00	CERAMIC MELF	0.022MF		25V
C64	1-163-063-00	CERAMIC MELF	0.022MF		25V
C65	1-163-063-00	CERAMIC MELF	0.022MF		25V
C66	1-163-063-00	CERAMIC MELF	0.022MF		25V
C67	1-102-120-00	CERAMIC	0.0018MF	10%	50V
C68	1-163-111-11	CERAMIC CHIP	0.0015MF	20%	25V
C69	1-163-063-00	CERAMIC MELF	0.022MF		25V
C70	1-163-063-00	CERAMIC MELF	0.022MF		25V
C71	1-163-063-00	CERAMIC MELF	0.022MF		25V
C72	1-163-063-00	CERAMIC MELF	0.022MF		25V
C73	1-163-063-00	CERAMIC MELF	0.022MF		25V
C81	1-102-961-00	CERAMIC	27PF	5%	50V
C82	1-102-961-00	CERAMIC	27PF	5%	50V
C83	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C84	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C85	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C86	1-124-477-11	ELECT	47MF	20%	16V
C87	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C88	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C101	1-124-925-11	ELECT	2.2MF	20%	50V
C102	1-124-463-00	ELECT	0.1MF	20%	50V
C103	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C104	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C105	1-124-477-11	ELECT	47MF	20%	16V
C106	1-136-173-00	MYLAR	0.47MF	5%	50V
C107	1-124-463-00	ELECT	0.1MF	20%	50V
C108	1-163-063-00	(WG,IT)...CERAMIC MELF	0.022MF		25V
CF1	1-567-389-11	FILTER, CERAMIC			
CF2	1-567-389-11	FILTER, CERAMIC			
CF3	1-567-389-11	(WG,IT)....FILTER, CERAMIC			
CF21	1-577-075-11	OSCILLATOR, CERAMIC (19kHz)			
CFT21	1-404-853-11	TRANSFORMER, IF (CERAMIC FILTER)			
CNJ1	*1-568-273-11	SOCKET, CONNECTOR 7P			
CNJ3	*1-568-308-11	SOCKET, CONNECTOR 4P			
CNJ4	1-568-269-11	SOCKET, CONNECTOR 3P			
D61	8-719-912-20	DIODE 1SS120			
FE1	1-463-857-11	(WG,IT)....FRONT END (FM)			
FE1	1-463-862-21	(AEP,UK)...FRONT END (FM)			
FE61	1-236-462-11	ENCAPSULATED COMPONENT (MW RF BLOCK)			
FE62	1-236-463-11	ENCAPSULATED COMPONENT (LW RF BLOCK)			
IC21	8-759-821-45	IC LA1851N			
IC81	8-759-820-91	IC LC7218			
L1	1-410-645-31	MICRO INDUCTOR 100UH			
L2	1-410-645-31	(WG,IT)...MICRO INDUCTOR 100UH			
L21	1-407-500-00	MICRO INDUCTOR 4.7UH			
L61	1-410-525-11	MICRO INDUCTOR 220UH			
LPF21	1-235-164-00	FILTER, LOW PASS			
LPF22	1-235-164-00	FILTER, LOW PASS			

TUNER SECTION

Ref.No.	Part No.	Description
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY
Q3	8-729-230-99	(WG,IT)...TRANSISTOR 2SC2669-OY
Q4	8-729-230-99	(WG,IT)...TRANSISTOR 2SC2669-OY
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q23	8-729-900-61	TRANSISTOR DTA114ES
Q24	8-729-900-80	TRANSISTOR DTC114ES
Q26	8-729-900-80	TRANSISTOR DTC114ES
Q61	8-729-900-80	TRANSISTOR DTC114ES
Q62	8-729-900-80	TRANSISTOR DTC114ES
Q63	8-729-900-80	TRANSISTOR DTC114ES
Q64	8-729-820-24	TRANSISTOR 2SC3330-T
Q65	8-729-821-04	TRANSISTOR 2SA1317-STU
Q66	8-729-900-80	TRANSISTOR DTC114ES
Q81	8-729-900-61	TRANSISTOR DTA114ES
Q82	8-729-900-80	TRANSISTOR DTC114ES
Q83	8-729-202-67	TRANSISTOR 2SK246-GR3
Q84	8-729-107-84	TRANSISTOR 2SC3113A
Q85	8-729-202-67	TRANSISTOR 2SK246-GR3
Q86	8-729-107-84	TRANSISTOR 2SC3113A
R1	⚠.1-249-397-11	(WG,IT)....CARBON (SMALL)22 5% 1/4W F
R1	⚠.1-249-401-11	(AEP,UK)...CARBON (SMALL)47 5% 1/4W F
R3	1-249-329-11	CARBON MELF 330 5% 1/8W
R4	1-249-329-11	CARBON MELF 330 5% 1/8W
R5	1-249-329-11	CARBON MELF 330 5% 1/8W
R6	1-249-350-11	CARBON MELF 18K 5% 1/8W
R7	1-249-329-11	CARBON MELF 330 5% 1/8W
R8	1-249-332-11	CARBON MELF 560 5% 1/8W
R9	1-249-352-11	CARBON MELF 27K 5% 1/8W
R10	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W
R11	1-249-350-11	(WG,IT)...CARBON MELF 18K 5% 1/8W
R12	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W
R13	1-249-334-11	(WG,IT)...CARBON MELF 820 5% 1/8W
R14	1-249-352-11	(WG,IT)...CARBON MELF 27K 5% 1/8W
R15	1-249-347-11	(WG,IT)...CARBON MELF 10K 5% 1/8W
R16	1-249-343-11	(WG,IT)...CARBON MELF 4.7K 5% 1/8W
R21	⚠.1-249-404-00	CARBON (SMALL)82 5% 1/4W F
R22	⚠.1-249-430-11	CARBON (SMALL)12K 5% 1/4W F
R23	1-249-335-11	CARBON MELF 1K 5% 1/8W
R24	1-249-353-11	CARBON MELF 33K 5% 1/8W
R25	1-249-346-11	CARBON MELF 8.2K 5% 1/8W
R26	1-249-340-11	(WG,IT)...CARBON MELF 2.7K 5% 1/8W
R27	⚠.1-249-432-11	CARBON (SMALL)18K 5% 1/4W F
R29	1-249-347-11	CARBON MELF 10K 5% 1/8W
R31	1-249-331-11	CARBON MELF 470 5% 1/8W
R32	1-249-347-11	CARBON MELF 10K 5% 1/8W
R33	1-249-347-11	CARBON MELF 10K 5% 1/8W
R34	⚠.1-249-437-11	CARBON (SMALL)47K 5% 1/4W F
R35	1-249-355-11	CARBON MELF 47K 5% 1/8W
R37	1-249-359-11	CARBON MELF 100K 5% 1/8W
R38	1-249-363-11	CARBON MELF 220K 5% 1/8W
R39	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R40	1-249-338-11	CARBON MELF 1.8K 5% 1/8W
R41	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
R42	1-249-359-11	CARBON MELF 100K 5% 1/8W
R43	1-249-363-11	CARBON MELF 220K 5% 1/8W
R44	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R45	1-249-338-11	CARBON MELF 1.8K 5% 1/8W
R46	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
R47	⚠.1-249-409-11	CARBON (SMALL)220 5% 1/4W F
R61	1-249-359-11	CARBON MELF 100K 5% 1/8W
R62	1-249-355-11	CARBON MELF 47K 5% 1/8W
R64	1-249-351-11	CARBON MELF 22K 5% 1/8W
R65	1-249-355-11	CARBON MELF 47K 5% 1/8W
R66	1-215-493-00	CARBON MELF 1M 5% 1/5W
R67	1-249-359-11	CARBON MELF 100K 5% 1/8W
R68	1-249-352-11	CARBON MELF 27K 5% 1/8W
R69	1-249-351-11	CARBON MELF 22K 5% 1/8W
R70	1-249-331-11	CARBON MELF 470 5% 1/8W
R71	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R72	1-249-351-11	CARBON MELF 22K 5% 1/8W
R73	1-249-347-11	CARBON MELF 10K 5% 1/8W
R74	1-249-347-11	CARBON MELF 10K 5% 1/8W
R75	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R81	1-249-335-11	CARBON MELF 1K 5% 1/8W
R82	1-249-335-11	CARBON MELF 1K 5% 1/8W
R83	1-249-335-11	CARBON MELF 1K 5% 1/8W
R84	1-249-335-11	CARBON MELF 1K 5% 1/8W
R85	1-249-347-11	CARBON MELF 10K 5% 1/8W
R86	1-249-335-11	CARBON MELF 1K 5% 1/8W
R87	1-249-347-11	CARBON MELF 10K 5% 1/8W
R88	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R89	1-249-335-11	CARBON MELF 1K 5% 1/8W
R90	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R91	1-249-335-11	CARBON MELF 1K 5% 1/8W
R92	⚠.1-249-401-11	CARBON (SMALL)47 5% 1/4W F
R101	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R102	1-249-332-11	CARBON MELF 560 5% 1/8W
R103	1-249-335-11	CARBON MELF 1K 5% 1/8W
R104	1-249-328-11	CARBON MELF 270 5% 1/8W
R105	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R106	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R107	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R108	1-249-323-11	CARBON MELF 100 5% 1/8W
R109	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R110	⚠.1-249-405-11	CARBON (SMALL)100 5% 1/4W F
R111	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R112	1-249-332-11	CARBON MELF 560 5% 1/8W
R113	1-249-335-11	CARBON MELF 1K 5% 1/8W
R114	1-249-328-11	CARBON MELF 270 5% 1/8W
R115	1-249-351-11	CARBON MELF 22K 5% 1/8W
R116	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R117	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R118	1-249-323-11	CARBON MELF 100 5% 1/8W
RV21	1-238-013-11	(AEP,UK)...RES, ADJ, CARBON 2.2K
RV21	1-238-015-11	(WG,IT)....RES, ADJ, CARBON 4.7K
RV22	1-238-017-11	RES, ADJ, CARBON 22K
RV24	1-238-017-11	(AEP,UK)...RES, ADJ, CARBON 22K
RV24	1-238-019-11	(WG,IT)....RES, ADJ, CARBON 47K
T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR
T23	1-236-465-11	(WG,IT)...ENCAPSULATED COMPONENT
TM1	*1-537-138-31	TERMINAL BOARD (ANT)(ANTENNA)
TP1	*1-560-060-00	PIN, CONNECTOR 2P
XT81	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

EXCEPT TUNER SECTION

Ref.No.	Part No.	Description			
902	*A-4334-501-A	(AEP).....MOUNTED PCB, POWER			
	*A-4334-503-A	(WG,IT)...MOUNTED PCB, POWER			
	*A-4334-822-A	(UK).....MOUNTED PCB, POWER			
903	*A-4334-497-A	(AEP)...MOUNTED PCB, PANEL			
	*A-4334-499-A	(WG)....MOUNTED PCB, PANEL			
	*A-4334-500-A	(IT)....MOUNTED PCB, PANEL			
	*A-4334-821-A	(UK)....MOUNTED PCB, PANEL			
904	1-575-666-11	WIRE, FLAT TYPE (11 CORE)			
C601	1-162-200-31	CERAMIC	11PF	5%	50V
C602	1-162-200-31	CERAMIC	11PF	5%	50V
C603	1-126-094-11	ELECT	4.7MF	20%	25V
C604	1-161-379-00	CERAMIC	0.01MF	30%	16V
C605	1-161-379-00	CERAMIC	0.01MF	30%	16V
C606	1-126-177-11	ELECT	100MF	20%	6.3V
C607	1-123-357-00	ELECT	22MF	20%	35V
C608	1-161-379-00	CERAMIC	0.01MF	30%	16V
C609	1-126-157-11	ELECT	10MF	20%	16V
C701	1-161-379-00	CERAMIC	0.01MF	30%	16V
C702	1-162-284-31	CERAMIC	150PF	10%	50V
C703	1-162-284-31	CERAMIC	150PF	10%	50V
C704	1-123-875-11	ELECT	10MF	20%	50V
C705	1-161-379-00	CERAMIC	0.01MF	30%	16V
C801	1-161-744-00	CERAMIC	0.01MF		400V
C802	1-101-004-00	CERAMIC	0.01MF		50V
C803	1-101-004-00	CERAMIC	0.01MF		50V
C804	1-126-105-11	ELECT	1000MF	20%	35V
C805	1-161-379-00	CERAMIC	0.01MF	30%	16V
C806	1-124-477-11	ELECT	47MF	20%	16V
C807	1-124-477-11	ELECT	47MF	20%	16V
C808	1-124-927-11	ELECT	4.7MF	20%	50V
C809	1-161-379-00	CERAMIC	0.01MF	30%	16V
C810	1-124-918-11	ELECT	47MF	20%	63V
C811	1-124-918-11	ELECT	47MF	20%	63V
C812	1-124-910-11	ELECT	47MF	20%	50V
C813	1-123-875-11	ELECT	10MF	20%	50V
CN601	*1-568-854-11	SOCKET, CONNECTOR 11P			
CN602	*1-568-273-11	SOCKET, CONNECTOR 7P			
CN701	*1-569-625-11	SOCKET, CONNECTOR 3P(SYSTEM CONTROL 2)			
CN801	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P			
CN802	*1-568-308-11	SOCKET, CONNECTOR 4P			
CN803	*1-568-830-11	SOCKET, CONNECTOR 11P			
CN804	*1-564-321-00	PIN, CONNECTOR 2P			
CN901	*1-569-625-11	SOCKET, CONNECTOR 3P(SYSTEM CONTROL 1)			
CN902	1-568-269-11	SOCKET, CONNECTOR 3P			

Ref.No.	Part No.	Description
CNJ801⚠	1-526-751-00	(UK).....OUTLET, AC
CNJ801⚠	1-526-794-11	(AEP,WG,IT)...OUTLET, AC
CNJ802⚠	1-526-751-00	(UK).....OUTLET, AC
CNJ802⚠	1-526-794-11	(AEP,WG,IT)...OUTLET, AC
CNP801⚠	1-575-651-11	(AEP,WG,IT)...CORD, POWER
CNP801⚠	1-575-652-11	(UK).....CORD, POWER
D601	8-719-912-20	DIODE 1SS120
D602	8-719-912-20	DIODE 1SS120
D603	8-719-912-20	DIODE 1SS120
D604	8-719-912-20	DIODE 1SS120
D605	8-719-912-20	(IT)...DIODE 1SS120
D609	8-719-912-20	DIODE 1SS120
D612	8-719-912-20	DIODE 1SS120
D613	8-719-912-20	DIODE 1SS120
D614	8-719-912-20	DIODE 1SS120
D615	8-719-912-20	DIODE 1SS120
D616	8-719-912-20	DIODE 1SS120
D617	8-719-912-20	DIODE 1SS120
D618	8-719-912-20	DIODE 1SS120
D701	8-719-912-20	DIODE 1SS120
D702	8-719-912-20	DIODE 1SS120
D801	8-719-912-20	DIODE 1SS120
D802	8-719-200-77	DIODE 10E2N
D803	8-719-200-77	DIODE 10E2N
D804	8-719-200-77	DIODE 10E2N
D805	8-719-200-77	DIODE 10E2N
D806	8-719-934-22	DIODE HZS30-2L
D807	8-719-014-66	DIODE UZP-5.6B
F801 ⚠	1-532-286-00	FUSE, TIME-LAG (2.5A)
FH801	1-533-213-31	HOLDER, FUSE
FH802	1-533-213-31	HOLDER, FUSE
FL601	1-519-595-11	INDICATOR TUBE, FLUORESCENT
IC601	8-759-239-54	IC TMP47C870N-4661
IC602	8-749-920-83	IC GP1U52XB
IC701	8-759-634-73	IC M50760-141P
IC801	8-759-820-09	IC LA5667
L601	1-410-521-11	INDUCTOR 100UH
L701	1-410-521-11	INDUCTOR 100UH
PT801⚠	1-449-979-11	TRANSFORMER, POWER
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF
Q702	8-729-620-05	TRANSISTOR 2SC2603-EF
Q703	8-729-900-80	TRANSISTOR DTC114ES

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

EXCEPT TUNER SECTION

Ref.No.	Part No.	Description			
Q801	8-729-140-04	TRANSISTOR 2SB1116A-L			
Q802	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q803	8-729-140-04	TRANSISTOR 2SB1116A-L			
R601	1-249-441-11	CARBON	100K	5%	1/4W
R602	1-249-425-11	CARBON	4.7K	5%	1/4W
R603	1-249-441-11	CARBON	100K	5%	1/4W
R604	1-249-441-11	CARBON	100K	5%	1/4W
R605	1-249-429-11	CARBON	10K	5%	1/4W
R606	1-249-429-11	CARBON	10K	5%	1/4W
R607	1-249-429-11	CARBON	10K	5%	1/4W
R608	1-249-429-11	CARBON	10K	5%	1/4W
R609	1-249-429-11	CARBON	10K	5%	1/4W
R610	1-249-429-11	CARBON	10K	5%	1/4W
R611	1-249-429-11	CARBON	10K	5%	1/4W
R612	1-249-429-11	CARBON	10K	5%	1/4W
R613	1-249-429-11	CARBON	10K	5%	1/4W
R614	1-249-429-11	CARBON	10K	5%	1/4W
R615	1-249-429-11	CARBON	10K	5%	1/4W
R616	1-249-423-11	CARBON	3.3K	5%	1/4W
R617	1-249-429-11	CARBON	10K	5%	1/4W
R618	1-249-429-11	CARBON	10K	5%	1/4W
R619	1-249-429-11	CARBON	10K	5%	1/4W
R620	1-249-429-11	CARBON	10K	5%	1/4W
R621	1-249-429-11	CARBON	10K	5%	1/4W
R622	1-249-429-11	CARBON	10K	5%	1/4W
R623	1-249-405-11	CARBON	100	5%	1/4W
R624	1-249-417-11	CARBON	1K	5%	1/4W
R625	1-249-429-11	CARBON	10K	5%	1/4W
R626	1-249-433-11	CARBON	22K	5%	1/4W
R701	1-249-425-11	CARBON	4.7K	5%	1/4W
R702	1-249-429-11	CARBON	10K	5%	1/4W
R703	1-249-393-11	CARBON	10	5%	1/4W
R704	1-249-425-11	CARBON	4.7K	5%	1/4W
R705	1-249-429-11	CARBON	10K	5%	1/4W
R706	1-249-393-11	CARBON	10	5%	1/4W
R707	1-247-903-00	CARBON	1M	5%	1/4W
R708	1-249-429-11	CARBON	10K	5%	1/4W
R709	1-249-429-11	CARBON	10K	5%	1/4W
R710	1-249-429-11	CARBON	10K	5%	1/4W
R801	1-247-743-11	CARBON	220	5%	1/2W
R802	1-249-429-11	CARBON	10K	5%	1/4W
R803	1-249-425-11	CARBON	4.7K	5%	1/4W
R804	1-249-425-11	CARBON	4.7K	5%	1/4W
R805	1-249-417-11	CARBON	1K	5%	1/4W
R806	1-249-433-11	CARBON	22K	5%	1/4W

Ref.No.	Part No.	Description			
R807 ⚠	1-247-702-11	CARBON	150	5%	1/4W F
R808	1-249-425-11	CARBON	4.7K	5%	1/4W
R809	1-249-437-11	CARBON	47K	5%	1/4W
RY801	1-515-720-11	RELAY			
S601	1-554-303-21	SWITCH, KEY BOARD (1)			
S602	1-554-303-21	SWITCH, KEY BOARD (2)			
S603	1-554-303-21	SWITCH, KEY BOARD (3)			
S604	1-554-303-21	SWITCH, KEY BOARD (4)			
S605	1-554-303-21	SWITCH, KEY BOARD (5)			
S606	1-554-303-21	SWITCH, KEY BOARD (6)			
S607	1-554-303-21	SWITCH, KEY BOARD (7)			
S608	1-554-303-21	SWITCH, KEY BOARD (8)			
S609	1-554-303-21	SWITCH, KEY BOARD (9)			
S610	1-554-303-21	SWITCH, KEY BOARD (10)			
S611	1-554-303-21	SWITCH, KEY BOARD (A.SHIFT)			
S612	1-554-303-21	SWITCH, KEY BOARD (B.SHIFT)			
S613	1-554-303-21	SWITCH, KEY BOARD (C.SHIFT)			
S614	1-554-303-21	SWITCH, KEY BOARD (+.TUNING)			
S615	1-554-303-21	SWITCH, KEY BOARD (-.TUNING)			
S616	1-554-303-21	SWITCH, KEY BOARD (BAND)			
S617	1-554-303-21	SWITCH, KEY BOARD (MEMORY)			
S618	1-554-303-21	SWITCH, KEY BOARD (MEMORY SCAN)			
S619	1-554-303-21	SWITCH, KEY BOARD (AUTO)			
S620	1-554-303-21	SWITCH, KEY BOARD (ONECE)			
S621	1-554-303-21	SWITCH, KEY BOARD (DAILY)			
S622	1-554-303-21	SWITCH, KEY BOARD (NEXT)			
S623	1-554-303-21	SWITCH, KEY BOARD (+.TIME)			
S624	1-554-303-21	SWITCH, KEY BOARD (-.TIME)			
S625	1-554-303-21	SWITCH, KEY BOARD (CLOSE)			
S626	1-554-303-21	SWITCH, KEY BOARD (SPEEP)			
S627	1-554-303-21	SWITCH, KEY BOARD (CONTROL)			
S628	1-554-303-21	SWITCH, KEY BOARD (CLEAR)			
S629	1-554-303-21	SWITCH, KEY BOARD (BACK)			
S630	1-554-303-21	SWITCH, KEY BOARD (POWER)			
S631	1-554-303-21	SWITCH, KEY BOARD (FREQUENCY/TIME)			
S632	1-554-303-21	SWITCH, KEY BOARD (MODE)			
X601	1-567-821-21	VIBRATOR, CRYSTAL (4.194304MHz)			
X701	1-578-699-11	OSCILLATOR, CERAMIC (800kHz)			

ACCESSORY & PACKING MATERIAL

4-920-940-01	SHEET (A), PROTECTION
*4-934-860-01	CUSHION

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English
90E1651-1
Printed in Japan
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